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its vital significance in relation to truth, and the hatred of uncritical dogmatism, are all appropriate results of this phase of such a course. A third objective is that of giving an ordered survey of the system of the sciences, which may be carried out at least to such a degree that the broader cultural ideas may be brought somewhat vividly into relation with the present state of speculation in natural science.

The Naturalistic Approach to Philosophy: BERNARD C. EWER.

Philosophy is a reflective study of human life and its relation to the universe. Logic and psychology are valuable preliminaries, but do not adequately present philosophical problems; and the various special disciplines are of course not equivalent to a comprehensive world-view. The ordinary "introduction to philosophy" is more properly an introduction to metaphysics. What the beginner in philosophy needs is a broad view of nature, including the individual human mind and society, based on the conclusions of the sciences, and exhibiting philosophical problems in the light of these conclusions.

As an experiment, the speaker recently tried to develop such a nature-philosophy in an elementary course, using as a basis the popular writings of eminent scientists, paying constant attention to evolutionary concepts, calling attention regularly to the numerous metaphysical assumptions and problems involved, and thus gradually leading up to the fundamental questions of ethics and religion. No attempt was made to acquaint the student with the sciences themselves, since such acquaintance can come only through special study, but rather with the ideas which scientific men set forth as the outcome of their labor, and which are of distinctly philosophic significance. The advantages of the method seemed to be a sustained interest due to a constant feeling of dealing with the actual world, and a certain concreteness of subject-matter which was helpful in developing the profounder problems of philosophy.

The Address of the President, Professor Carl E. Seashore: *The Rôle of Play in Religion.* (To be published later.)

BERNARD C. EWER,
NORTHWESTERN UNIVERSITY. *Secretary*

THE PROBLEM AND CONTENT OF EDUCATIONAL PSYCHOLOGY

IN recent years the problem as well as the content of educational psychology has increased very greatly in complexity. This is partly because the science of psychology itself has been rapidly gaining in both scope and intent until every conceivable aspect of animal behavior as well as of human conscious life has come to be regarded as falling within its legitimate sphere of investigation. Hence it has come to pass that the one who has the planning of psychological material for those preparing to teach is embarrassed by a wealth of material, all of which seems to have more or less definite value for the purpose in hand. The main problem thus seems to be one of selection of the best from among much that is good, for it is clear that there is not time to teach everything. What, then, are the phases of this rapidly developing science which are most valuable for the training of the teacher, and according to what standard shall they be selected?

The problem we are facing, however, is not merely one of selecting from a complex science the elements that may be of value for some particular purpose. It is even more that of determining clearly a dominant view-point and the laying down of the lines for, and the development of, a new science.

It is interesting to reflect that one or at most two decades ago the problem of an educational psychology hardly existed. At least it had not gained a place at the focus of attention. It was thought at that time, as it had been thought for years, that any account of mental structures and functions, no matter how abstract it might be, if it were true, would meet the need of the teacher for a psychological training. Just because the teacher, *par excellence,* had to deal with minds, he must, perforce, know the science of the mind. We of to-day do not depreciate in any way this general descriptive science, but we doubt if it is of any more significance for those who are engaged in teaching than for those in other professions. If it is worth while, from the standpoint of general culture, to have a certain amount of scientific training, presumably psychology has as good a right as any other science to a place in the student's program. But as we have suggested, this general science has no preeminent claim upon the teaching profession. It is becoming more and more apparent that it is a science that touches in some way all phases of human activity and is concerned in all types of vocations.

With the recognition of this broad general relation between psychology and many different callings, arose also the recognition of the possibility of a much more intimate relation between the facts of the science and practical problems than had been imagined when teachers were first advised to study psychology just because of its being mental science. It was seen, in other words, that the solution of practical problems in every vocation depends in large measure upon an accurate understanding of all the factors involved. Hence the teacher must be interested in the facts furnished by the science of psychology in so far as these facts help in the interpretation and control of situations and assist in the proper meeting of such difficulties as arise in the work of teaching.

At first, however, the *character* of this need was only imperfectly appreciated and the first attempts to meet it were through a more or less uncritical selection and superficial discussion of certain aspects of psychology such as attention, perception, memory, imagination, etc., and by tacking to them pedagogical applications of various sorts. Münsterberg well describes it as a cramming of some psychological laws to which was added an appendix of moral appeals. The outcome of the process was usually a very unreliable psychology and a sort of disjointed rule-of-thumb pedagogy.

At this point the continuity of the development of an educational psychology was broken. The next step, logically, would have been to work out a psychology of the educative process, or a discussion of the fundamental characteristics of the educative process with reference to the psychical factors involved in it. What should next have developed, in other words, should have been an organic union of aims and means to take the place of the unilluminating scrap-heap type of educational psychology that had first arisen. Certainly the value of descriptive psychology for the teacher did not end with this piecemeal application, and yet this is practically where it stands to-day. The reason for this is that attention has largely been turned in another direction, namely, toward the experimental investigation of various problems which have more or less educational interest and yet are sufficiently psychological to claim the attention of those psychologists of somewhat definite pedagogical bent. The development of experimental methods, particularly in psychology, has furnished a technique for attacking many problems having a practical bearing for the educator as well as those having a relation to the pure science of the psychologist. In many cases, the motive prompting the investigations has been rather that of the pure scientist even when it has been recognized that the results might play into the hands of the educational theorist.

Thus, in one way or another, an extensive field for experimental research in education has been opened up, in part quite definitely psychological and in part only remotely so, but in most cases full of general human interest. In fact, the enthusiasm of many students has been so great that they have been ready to regard the data afforded by the researches in this field as constituting the only *real* educational psychology. For ourselves, however, we can not escape the feeling that the field of experimental education as thus far developed belongs essentially to the advanced student. The beginner in education needs a more organized account of the fundamental relations of psychology and teaching. He has definite and practical situations to face and these should furnish the starting-point of a genuinely scientific inquiry, which, although dealing with psychical processes and factors, is first and last concerned with educational rather than with psychological problems.

We repeat, then, that it is not mere descriptive psychology that the prospective teacher needs at this point, even though it be of the excellent type represented by James, Angell, Judd, or Royce, or, rather, his needs pass beyond that which these books afford. Nor is he ready, after having studied the descriptive science, to undertake experimental researches in educational psychology. For one thing, he has not as yet a sufficient appreciation of the problems of education to undertake such work with profit. He should understand certain general principles of the psychology of education before undertaking experimental work, just as the experimental psychologist must, to start with, have certain general notions of psychical contents, relations, processes and problems, for only thus can he appreciate the questions that lie before him as an experimentalist.

Experimental education is not, then, in a position to meet the need of the prospective teacher who has just finished his course in general descriptive psychology. Some of its problems have, it is true, grown directly out of school work, and their solution may have an important influence upon educational theory and practise. But, in the case of many of the questions, the impelling motive has been that of pure science and their bearing upon the actual conduct of school work is at best very remote. Important as is the field of experimental educational psychology, it is then preeminently the field for the research student rather than for the novice. Not that the novice may not profitably take up experimental work, but rather that this is a specialized field in which the average person who prepares to teach is not, and need not be, concerned to enter. And yet, as we have said, there has been a tendency on the part of many to limit the field of educational psychology to this sphere, a sphere in which the objects of research are unquestionably derived from education, but in which the interest is that of the pure scientist rather than of the practical teacher.

These then seem to be the alternatives before the prospective teacher at the present time, either general descriptive psychology with no attempt at applying it to his special problem, or a hodgepodge of psychological lore with certain supposed "applications," or, lastly, experimental education. The first and last of these are respectable and legitimate subject-matters, the second no respectable scientist cares to own, a bastard child, as it were. And yet, as we have said, the actual needs of the prospective teacher are met by neither one of these perfectly respectable sciences. Neither one furnishes the specific information for the controlling of practise that a genuine applied science is supposed to afford.

This brings us definitely to the question as to whether there is not an as yet undeveloped science of psychology as related to teaching, a science which will not be a mere jumble of extracts with pedagogical applications attached, but rather a real applied science, with a recognizedly educational point of view and definitely determined problems which are primarily educational and yet which can be coped with best by a study of the psychological factors involved in them. Such an applied science would stand upon its own feet because it would have a unity of its own, its own peculiar problems, its own peculiar stratification and lines of cleavage. Psychological fact appears in it, not merely as psychological fact, but with reference to its throwing light upon educational problems. It presupposes in the student, however, a general knowledge of these psychological facts. It goes without saying that such a knowledge is a prerequisite to getting any light upon the educational problem through these facts. It may be that the candidate for a course in educational psychology does not know much about the general science. But just because his preparation for the applied science is defective is no excuse for calling that educational psychology which must be given him to remedy his defect. It may be necessary for the teacher of educational psychology to stop and teach some general psychology, that he may have in his class the basis on which to prosecute his educational inquiry. But when he is doing this he is not teaching educational psychology, he is rather losing time from what he is supposed to do because of the inadequate preparation of his students for that which they should be able to do when they come to him.

It has been with reference to such things as have been enumerated in the paper thus far that the present writer has for several years been gradually working out what seems to him to be a real psychology of education that is not a mere rehash of the conclusions of the general science. Neither is it experimental education, good and proper as that surely is. It rather attempts a systematic account of the educative process in the light of such elementary psychological facts as bear an important relation to controlling it and hence rendering it more effective. The attempt has been to start from some definitely educational point of view, to lay down certain fundamental educational axioms, concepts, or problems, and to investigate them in the light of the psychical processes that are involved in them.

The fundamental axiom, or concept, is that an educative process is essentially one involving change of some sort or, more specifically, growth. The nature and implications of growth as contrasted with mere mechanical accretion are first discussed and applied to learning.

The centralizing principle thus becomes the learning process as a special phase of growth.

It is freely admitted that this point of view may be too narrow to include all the facts that should belong to an educational psychology. But, on the other hand, it is doubtful if any single point of view can be found which will comprehend all the complexity of the educational process, and this one is sufficiently inclusive for practical purposes. In the process of learning, in its various aspects, we have certainly the central fact of education. It is a process which needs to be studied from many different angles, and especially from that which reveals the way in which and the extent to which it is conditioned by psychical processes, structures, and laws.

In the course as worked out from this basis, the main lines of classification and the most important concepts are, as it has been suggested they should be, primarily educational rather than psychological. Consequently we do not, after this introductory discussion of growth, become immersed in the psychology of sensation as the basis of all knowledge. In fact, to the present writer, it seems very doubtful whether an educational psychology need have anything to say of sensation or of perception as such. The next topic treated is activity or impulse. It is pointed out that growth always presupposes an inner activity of some sort. That which is entirely inert can not grow. Hence the fact that the learner is active, impulsive, is of the utmost significance in any account that may be taken of the learning process. That impulse is an essential characteristic of all organisms from the lowest to the highest is brought out and illustrated in many ways. In the lower forms and in the human infant it appears as mere restlessness, without purpose or content. In higher forms it becomes, in addition to this, desire and even "rational eagerness." We next emphasize the general importance as a prior active attitude for the apprehension of any and all new experience. Impulse is at first, moreover, entirely without *content,* that is, mere tendency to move without objective or accompanying consciousness of meaning. But the mere expression of impulse results in its acquiring some sort of more or less definite content. The suggestion is offered and developed in the course that the rich content of adult mental life is definitely related to and in fact is the outcome of the impulsive, projective attitude which every organism assumes toward its environment. Impulse thus appears to be the initial point in all learning. There must be some movement or initiative on the part of the child before he can be taught. Impulses are not to be crushed out as bad nor permitted to run riot on the supposition that they are good. They are merely the raw material of character, potentialities to be utilized. They do not cease to exist when organized into character, however, for our psychic life is always active, always reaching out, always projective. The character of the adult may differ in many ways from that of the child, but as far as impulse is concerned it differs simply in that it has content and is organized along more or less definite lines.

This phase has been worked out in varying detail according to the class, but in any case the object is to impress as clearly as possible upon the class that the learning process is one of active appropriation rather than of passive absorption.

We next discuss certain conditions which may be regarded of primary significance in calling forth impulse, conditions which are therefore favorable to learning. Two types of conditions are distinguished, representing two suggestive angles from which to view the process of mental growth. In the first there is the social atmosphere, for the learning process is one which involves in many of its aspects the interaction of minds, is, in other words, a social process. The other vitally important condition of learning is that it shall have motive or purpose, and this aspect of the subject is discussed under the heading of the problem.

With reference to the first of these fundamental conditions, that of the social atmosphere, the idea is presented that educational psychology is in large measure social psychology of a certain type. It is conceivable that learning might go on in a social vacuum, that is, be a purely individualistic affair, but the point is made that learning as far as it appears in school, as far as the teacher is concerned in it, is influenced in very important ways by the presence of other people. The attempt is made to carry this social view-point throughout the course, keeping in mind, for example, that interest, attention, memory, reasoning, and so forth, seldom develop in their recognizedly characteristic ways except under some sort of social stimulation. In other words, it seems best to let the social point of view be present more or less continuously rather than to divide the course into two parts, one dealing with the social and the other with the individualistic aspects of learning. At this point, however, the most general aspects of the social character of learning are discussed with reference to making clear the presuppositions of what follows.

The relation of the problem to learning activity is next considered in a preliminary way. It is not of course supposed that all learning is conditioned by the presence in consciousness of some definite problem, the idea is simply that this is a significant point from which to view many different types of learning. In this discussion it is first necessary to broaden the concept of the *problem* that is apt to be in the minds of most of the class. Many illustrations are given drawn from all the different types of school studies as well as from life outside the school. Such topics as these are considered, the conditions under which problems arise, their relation to impulse and to the development of mental content in general, the function of the teacher with reference to the pupil's questions and their solution, for instance, can the teacher take an active part in awakening the pupil to a consciousness of problems and in helping him to solve them, and the results continue to be educative in the best sense, the relation of the higher forms of social influence to the origin and solution of purposes or things for which one may work?

In the remainder of the course the attention is fixed upon the learning, or more specifically the problem-solving activity, with the object of determining the organization of and place within it of various psychical processes. Thus interest and effort are seen to fall naturally together in the solution of a genuine problem; attention stands for the organization of the self in the face of a difficulty of some sort. The different types of attention stand for successively more and more complex organizations of the self about matters which appeal to it as affording avenues of genuine self-expression. Spontaneous attention is not intrinsically different from or lower than the voluntary or reflective type. The former is simply the expression of a more primitive or instinctive self than the latter. The attention is to be developed by the development of the self with a capacity for appreciating and grappling with many different types of purposes and problems. Attention means organization of the self, and this occurs most characteristically when one faces a problem that is for him genuine.

The next subject taken up is that of the extent and ways in which the predisposition of the psychophysical organism is operative in the learning activity. The various facts which belong to the psychology of habit, of apperception, of association and memory, contribute largely to the development of this phase of the subject. In many concrete ways we attempt to show how that which one does at any time is conditioned by his previous activities which hold over in the form of various motor coordinations, how new acts of skill are based very definitely upon previous accomplishments. This same fact of predisposition holds as truly in the sphere of feeling and ideation, and the influence of past ideas and modes of thought upon present purposes and problems is fully illustrated. If apperception is to be regarded as an assimilative activity and not merely mental predisposition, it is shown that this assimilation actually takes place more characteristically and effectively when it is motivated in some way than if it is made to depend upon old ideas which are supposedly similar to the facts which are to be taught. Only as old experiences become problematic or discrepant do they become very active in the assimilation of the new.

As far as association and memory are concerned the general nature of the mechanism and of the primary laws is presupposed. The educator is not directly concerned with them, at least with them in the form in which they are presented in most psychologies. Mental events will be bound together in some way or other, whether the teacher thinks about it or not. That there will be some sort of associative connections goes without saying. The teacher's problem is to influence in some measure the *kinds* of connections that are to be established. These are not so much bare connections of idea with idea as more or less complicated systems of mental elements. The question is, then, as to how the most useful systems can be built up, that is, systems which will render past experiences the most thoroughly available for present needs. This systematization will be affected not so much by mere mechanical juxtaposition or by infusing a little pleasure into the union, as by using ideas together in the working out of purposes or in the solving of problems. In other words a teacher is not so much concerned with the fact that ideas do cohere as with the question of how to secure the most useful modes of coherence. He is not so much interested in the fact that two ideas may be associated by contiguity or by similarity as in the fact that a problem or purpose furnishes a dynamic center about which the simpler portions of experience may cluster and acquire indissoluble connections.

This in like manner is seen to be the condition of effective memory, of discrimination, of concept-formation, of judgment, and of reasoning. The limits of a brief paper forbid a detailed statement of this latter portion of the course. In fact, only the barest outlines of any of it have been given and it is not likely that such a schematic statement can prove entirely convincing. It can only be said in conclusion that the main objective of the course is to get old psychological facts from a new angle, such a one as will enable the student to determine which facts are really significant for the control of the educative process. As it has actually been worked out and tried with many classes the writer does not feel that it should be subjected to the criticism of being scrappy or of being a mere rehash of the general science of psychology. The ever-present educational problem gives opportunity for an organized and unified as well as for an entirely fresh treatment.

IRVING KING.

STATE UNIVERSITY OF IOWA.